Driver Distraction and Safety

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Driver Distraction

- Distraction is a significant causal part of US Traffic Safety (now and also historically)
- Driver is ultimately responsible for making appropriate trade-off decisions for safe driving performance
- In-vehicle information/communication systems have significant societal promise to improve safety
- GM strongly supports the proposals now active for creating a scientific knowledge basis that will assist drivers and industry in making proper decisions for safety
- Interim educational steps are important to help drivers avoid distraction that may affect their driving performance

Driver Responsibilities

- Responding to changes in the external environment must be the driver's top priority
- Drivers will attempt to balance this with many other types of tasks in the vehicle
  - Social
  - Entertainment
  - Productivity
- Proper balance can only be achieved in the hands of the driver

Infotainment in Vehicles Today

- Data and communication technologies are already in the vehicle, most are aftermarket devices
- Several long term trends intersect to make this a continuing societal focus area: "time squeeze", "be in control", "ubiquitous technology"
- Drivers have a desire to use the technologies emerging almost regardless of what automakers offer, regulators prescribe, police officers enforce, etc
- Attempts by automakers to stop or limit the use to telematics in vehicles may be counter-productive
- Technology can help us reduce driver workload

GM Plans for Telematics Capability

- Respond to the capability that customers want
  - Enhance the safety capabilities that in-vehicle communication offers
  - Address the distractions they may present
- Allow vehicle occupants to safely use the in-vehicle capabilities
- Assist drivers in making decisions on use of such devices
- Intend to approach with sound first principles and objective basis

GM Principles in Integrating Telematics Capability

- Minimize hands-off-wheel, and eyes-off-road time
- Minimize the number of steps required to complete any given task
- Create common interface (look and function) systems
- Limit availability of particularly demanding tasks while driving

- GM intent is to drive these into technical requirements for engineering vehicle systems . . . . as early as technical understanding allows

GM Emphasis Areas With Communication/Data and Advanced Technology

- OnStar automated collision notification and services
- Hands-free communication
- Simple user interface, voice activation
- Long term attention to human/vehicle interface
  - Heads-Up Display
  - Stability enhancement systems
  - etc.

GM Actions for the Future

- In-vehicle information/communication systems have significant societal promise to improve safety
  - summoning help
  - navigation and traffic aids
  - managing time
- GM is committed to scientific study to optimize these benefits
  - US-DOT IVI
    - Collision Avoidance Metrics Partnership
    - GM Co-Sponsorship of ACAS-FOT
  - IHRA IVI
  - Internal work

Needs and Challenges

- Product development of intelligent vehicle capabilities for safety enhancement
- Develop capability of telematics technology to reduce driver burden
  - Operator communication interface
  - Integrated systems
  - Dialogue management

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Needs and Challenges: Resolve Significant Technical Unknowns

- Understanding and evaluation of driver burden as a part of overall human/vehicle interaction
  - Scientific basis for industry or regulatory policy
  - Criteria for what constitutes distraction, thresholds of driver burden that result in performance issues
  - Methods of quantification of workload and distraction
  - Relative importance of cognitive, manual, and visual workload to driver performance
- But: drivers differ greatly in capability to manage distraction and accomplish telematics-related tasks

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Needs and Challenges: Education and Training

- Technical capability will progress faster than policy activity
- Expedient approach (and perhaps only practical approach) to deal with rapid rise in usage is education
- Necessary roles for each of:
  - Telematics Equipment and Service Providers
  - Federal/State/Local Government
  - Auto Manufacturers
  - Insurers
  - Non-Governmental Organizations